

5088359



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D6104-011
Job Sheet 179256



Part No: D6104-011

Job Qty: 12 ea

Part Name: 17-4 SS Roundbar 6.50"OD



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 6/15/18

Job Tracking No:

Due Date: 6/29/18

Created By: Chantal Lavoie

Type: Stock

Description:

Note: DWG REV B

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
100	Purchasing	12 pcs		6/29/18	0.00	0.00	Purchasing		AT 18/06/18
110	Packaging	12 pcs		6/29/18	0.00	0.00	Packaging2		AT 18/06/18
120	QC	12 pcs		6/29/18	0.00	0.00	QC6		DLS 06.25
130	Packaging	12 pcs		6/29/18	0.00	0.00	Packaging3-2		DLS
140	QC21-SA	12 Ea		6/29/18	0.00	0.00	QC21		21 JUL 11 2018

Part Op 100 - Issue P/O: 40217 b) Ø6.50" x 4.100" long e) Min UTS = 170 KSI (38 HRc) Material certification required
 Descriptions: 110 - Ensure material certification is attached
 120 - Ensure Material certification comply to Dwg D6104
 130 - LOCATION: MAT043

JUN 15 2018

DAS
13
9-80

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6104-011P	17-4 SS Roundbar 6.50"OD	12 pcs (1 ea)	100-Purchasing	5088358

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
100-Purchasing	D6104-011P	12	1	0

Part Specifications

Specifications could not be found.

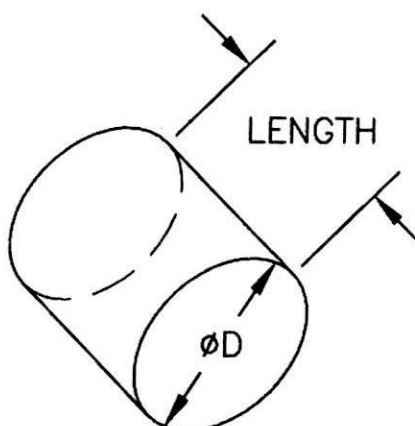
Plex 6/15/18 9:26 AM dart.lavoie.chantal



DESIGN 	DRAWN BY 	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED 	APPROVED 	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED
02.11.29

SPECIFICATION CONTROL DRAWING



MATERIAL: 17-4 PH SS (AMS 5643) OR AISI 630) MIN UTS = 170 KSI (38 HRc)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

Copyright © 2001 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO040217**

Supplier: MEC002-VU
Metaux Castle
P.O. Box 4090 Stn A
Toronto
ON
M5W OE9 Canada

PO No: PO040217

PO Date: 6/15/18

Due Date: 6/29/18

Purchase Order

Revision:

Revision Date:

Ship-To Contact: Lavoie, Chantal
Phone: clavoie@dartaero.com

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments:

RECEIVED
JUN 15 2018

Items

Line Item	Job	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	179252	D6104-003P		17-4 SS Roundbar 3.25"Od	Firmed	6/29/18	12 pcs	0 pcs	12 pcs	\$26.70/pcs	\$320.40
2	179253	D6104-007P		17-4 SS Roundbar 4.50"Od	Firmed	6/29/18	12 pcs	0 pcs	12 pcs	\$68.53/pcs	\$822.36
3	179254	D6104-009P		17-4 SS Roundbar 5.25"Od	Firmed	6/29/18	12 pcs	0 pcs	12 pcs	\$111.7167/pcs	\$1,340.60
4	179256	D6104-011P		17-4 SS Roundbar 6.50"OD	Firmed	6/29/18	12 pcs	0 pcs	12 pcs	\$128.20/pcs	\$1,538.40
										Grand Total:	\$4,021.76

Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)
A026 certification of material conformance
A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 6/15/18 1:08 PM dart.lavoie.chantal

**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 1 of 2

Shipment No:3632814

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 26-JUN-18	F.O.B. ORIGIN	Freight Terms Prepaid		Carrier MANITOULIN		BOL No 3632814-2	

Shipment Details	Final Destination Branch - TOR
-------------------------	---------------------------------------

Order No	Line No	Item No	Description				
5175328	5	15003.MO	6.5000.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.120.0000-168.0000 CUT TO 4.1 IN (+ .2500/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AMS 5643 ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com				
Purchase Order No		Part Number		Ordered Qty		Invoice Qty	
40217		YOUR ITEM NUMBER: D6104-011		12.00 PCS		12.00 PCS	
Details		ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS					
Delivery No.	Mill/Source	Heat Number	Mech Id	PCS	Width (IN)	Length (IN)	Shipped Qty(LBS)
121912337				12			480.5438



Castle Metals®

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 2 of 2

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size for material cut by the customer cannot be returned for credit.

Reviewed by Authorized Castle Metals Representative:

JUN 26 2018

Date:  Name: **SUE KALOUS**



GLORIA MATERIAL TECHNOLOGY CORP. INSPECTION CERTIFICATE



INSPECTION CERTIFICATE

Messrs: Magellan Corporation
Order No.: 2016007905-23
File No.: 2017000256-A
Grade: UNS S17400 (17-4)
Size: 6.5"
Heat-Lot No.: SG2772-40
Condition: HF-Solution Annealed-Peeled

P.O.No.: 211261
Date: 01/23/2017
Weight: 3560KG 7848.45LB
P'cs: 6

Chemical Composition (wt%)

	C	Si	Mn	P	S	Ni	Cr
Min.						3.00	15.00
Max.	0.07	1.00	1.00	0.040	0.030	5.00	17.00
Result	0.02	0.47	0.63	0.027	<0.001	4.28	15.28

	Mo	Cu	Co	N	Fe	Cb+Ta
Min.		3.00				0.15
Max.	0.50	5.00				0.45
Result	0.15	3.43	0.041	0.0100	75.3	0.22

Mechanical Properties Spec.

	Hardness	Hardness	Grain Size	Delta-Ferrite
	1/2R	Surface	ASTM E112 T	AMS 2315 L
Spec.Min.				
Spec.Max.	363HBW	363HBW		5%
Result	322HBW	312HBW	3	0.5%

H900 Hardness (Ave)

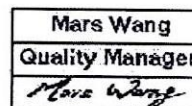
	1/2R L	SURFACE L
Spec.Min.	40HRC	40HRC
Spec.Max.	47HRC	47HRC
Result	42HRC	42HRC

Macro Etching

	MACRO ETCH	MACRO ETCH
	ASTM E340	ASTM E340
	B	T
Spec.		
Result	OK	OK



Heat Treating
Material Testing Laboratory
Nondestructive Testing



Page 1 of 3

Our quality and environment management systems have been certified by AS9100, ISO9001 QMS, ISO14001 EMS, OHSAS18001 OH&S, and NADCAP. We hereby certify that the material described herein has been manufactured and tested with satisfactory results in accordance with the requirement of the above material specification. Inspection Certificate comply with EN 10204 3.1.

台灣台南市新營區新中路35號 / NO.35, HSIN CHUNG RD., HSIN YING, TAINAN, TAIWAN
TEL: 886-6-6520031 / FAX: 886-6-6230877
<http://www.gmtc.com.tw>



GLORIA MATERIAL TECHNOLOGY CORP. INSPECTION CERTIFICATE



INSPECTION CERTIFICATE

Messrs: Magellan Corporation
Order No.: 2016007905-23
File No.: 2017000256-A
Grade: UNS S17400 (17-4)
Size: 6.5"
Heat-Lot No.: SG2772-40
Condition: HF-Solution Annealed-Peeled

P.O.No.: 211261
Date: 01/23/2017
Weight: 3560KG 7848.45LB
P'cs: 6

Tensile Test

	Elongation(A)	Tensile Strength(Rm)	Yield Strength(0.2% Rp)	Reduction of Area(Z)
	1/2R L (Ave)	1/2R L (Ave)	1/2R L (Ave)	1/2R L (Ave)
Unit	%	KSI	KSI	%
Min.				
Max.				
Result	16	149	117	60

Tensile Test

	Elongation(A)	Tensile Strength(Rm)	Yield Strength(0.2% Rp)	Reduction of Area(Z)
	1/2R L (Ave)	1/2R L (Ave)	1/2R L (Ave)	1/2R L (Ave)
Unit	%	KSI	KSI	%
Min.	10	190	170	35
Max.				
Result	16	200	170	48

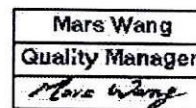
Non-Metallic Inclusions :AMS 2303

	Severity	Frequency
Seat		
Max.	0.35	0.4
Result	0	0

FORGING RATIO: 8.9:1

Specification:

1. MAGELLAN CORPORATION MATERIAL SCOPE FOR 17-4 ANNEALED.
2. MAGELLAN MIC 1801, SEPTEMBER 8, 2016.
3. ASTM A388/A388M-16A.
4. API 6A PSL3.
5. API 6D ANNEX F.
6. ASTM A564/A564M-13.



Page 2 of 3

Our quality and environment management systems have been certified by AS9100, ISO9001 QMS, ISO14001 EMS, OHSAS18001 OHS, and NADCAP. We hereby certify that the material described herein has been manufactured and tested with satisfactory results in accordance with the requirement of the above material specification. Inspection Certificate comply with EN 10204 3.1.



台灣台南市新營區新中路35號 / NO.35, HSIN CHUNG RD., HSIN YING, TAIWAN, TAIWAN

TEL: 886-6-6520031 / FAX: 886-6-6230877

<http://www.gmtc.com.tw>



GLORIA MATERIAL TECHNOLOGY CORP. INSPECTION CERTIFICATE



INSPECTION CERTIFICATE

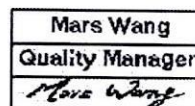
Messrs: Magellan Corporation
Order No.: 2016007905-23
File No.: 2017000256-A
Grade: UNS S17400 (17-4)
Size: 6.5"
Heat-Lot No.: SG2772-40
Condition: HF-Solution Annealed-Peeled

P.O.No.: 211261
Date: 01/23/2017
Weight: 3560KG 7848.45LB
P'cs: 6

7. ASTM A484/A484M-16.
8. ASTM E8/E8M-16A.
9. ASME SA-564/SA-564M(2013).
10. AMS 5643U.
11. NACE MR0103(2005)(EXCEPT FOR H₂S CORROSION TEST).
12. NACE MR0175/ISO 15156(2009)(EXCEPT FOR H₂S CORROSION TEST).
13. UNS S17400.

Remark:

1. MANUFACTURING PROCESS: ATR MELTING (EAF+LHF+VOD/AOD), INGOT CAST, HOT FORGED.
2. SOLUTION TREATMENT: 1900 +/- 25 DEGREE F FOR 30 MIN/INCH (MINIMUM FOR 1/2 HOUR), FAST COOLED TO BELOW 90 DEGREE F.
3. MECHANICAL PROPERTIES TESTED AS PER H900 CONDITION.
4. HEAT TREATING EQUIPMENT MEETS THE REQUIREMENTS OF ANNEX M OF API 6A AND ANNEX F OF API 6D STANDARDS.
5. CHEMICAL COMPOSITION TO BE TESTED IN ACCORDANCE TO ASTM A751.
6. MATERIAL IS FREE FROM KNOWN CONTACT WITH MERCURY AND RADIUM.
7. MATERIAL IS FREE FROM WELDS OR WELDING REPAIRS.
8. MATERIAL IS FREE FROM RESIDUAL RADIOACTIVITY.
9. ROHS COMPLIANT.
10. ULTRASONIC TEST IS FOLLOWING ASTM A388 AND THE ACCEPTANCE LEVEL IS ACCORDING TO API 6A PSL3, SATISFACTORY.
11. MACRO IS SATISFACTORY PER ASTM E340.
12. DELTA FERRITE CONTENT IN ACCORDANCE TO AMS 2315.
13. NON-METALLIC INCLUSION: FREQUENCY AND SEVERITY RATINGS PER AMS 2303.
14. BRINELL HARDNESS IN ACCORDANCE TO ASTM A370
15. EN 10204 SECTION 3.1 COMPLIANT.
16. COUNTRY OF ORIGIN: GMTC, TAIWAN.
17. MANUFACTURE OF COUNTRY: TAIWAN.
18. MELT OF COUNTRY: TAIWAN.



Page 3 of 3

Our quality and environment management systems have been certified by AS9100, ISO9001 QMS, ISO14001 EMS, OHSAS18001 OH&S, and NADCAP. We hereby certify that the material described herein has been manufactured and tested with satisfactory results in accordance with the requirement of the above material specification. Inspection Certificate comply with EN 10204 3.1.



台灣台南市新營區新中路35號 / NO.35, HSIN CHUNG RD., HSIN YING, TAINAN, TAIWAN

TEL: 886-6-6520031 / FAX: 886-6-6230877

<http://www.gmtc.com.tw>

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: DG104-011
 DATE: 18/06/28

PO / BATCH NO.: P0040217/S088359

MATERIAL CERT REC'D: Ks
 QUANTITY RECEIVED: 12
 QUANTITY INSPECTED: 12
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 4.100"
 THICKNESS RECEIVED: 4.100"
 SHEET SIZE ORDERED: —
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y ☒ N	
CORRECT FINISH	☒ Y N	
CORROSION	Y ☒ N	
CORRECT GRAIN DIRECTION	☒ Y N	
CORRECT MATERIAL PER M-DRAWING	☒ Y N	AMS 5643
CORRECT THICKNESS	☒ Y N	
PHOTO REQUIRED	Y ☒ N	
CORRECT REF # TO LINK CERT	☒ Y N	HT: 562772-90
CORRECT MATERIAL IDENTIFICATION	☒ Y N	
CORRECT M# ON THE MATERIAL	☒ Y N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y ☒ N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y ☒ N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AT^{DAS}</u> DATE: <u>18/06/28</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in